IN THE SPECIFICATION

Please replace the paragraph beginning on page 1, line 12, with the following replacement paragraph:

Exponentiation is a fundamental operation in many cryptographic applications, including multi-party public key encryption, decryption and digital signature protocols. Exponentiation is also an expensive operation in terms of the computational resources that it requires. For example, using standard window-based methods, about 200 modular multiplications are typically required per exponentiation for exponent sizes of around 160 bits. There are a number of known techniques that attempt to improve the computational efficiency of exponentiation. However, such techniques have generally only been successful in providing an improvement for so-called large batches of computations, which typically include many thousands of similar computations. More specifically, amortization techniques such as those described in J. Bos and M. Coster, "Addition Chain Heuristics," Proceedings of CRYPTO ~~'98~~ '89, pp. 400-407, which is incorporated by reference herein, are particularly efficient for performing exponentiation in large batches.

Please replace the paragraph beginning on page 7, line 13, with the following replacement paragraph:

1. Replication (Operation 310 in FIG. 3). Instead of delegating a given computational task one time to the external servers, the task is delegated τ times ~~instead of only once~~. Since each task is delegated τ times, both local and external costs increase by a factor τ, not including minor amortization gains.